

Online Appendix

Debtholder Monitoring Incentives and Bank Earnings Opacity

Not for Publication

Appendix A: Details for the introduction of state depositor preference laws

A.1 List of keywords - search strategy for motivation behind state depositor preference laws

The following list of keywords is used in Lexis/Nexis, Factiva, American Banker, Journal State Legislatures, and Business Source Complete.

priority for bank deposits, priority for depositors, depositor priority, depositor preference, priority claim, creditor ranking, bank liquidation, bank failure, liquidation of bank, claim structure for deposits, ranking of depositors, deposit obligation, depositor obligation, claims of depositors, claim structure, priority of claims liquidation priority, liquidation regime, claims to be paid before those of general creditors, pari passu with general creditors, market discipline, enforcement actions, deposit rank, depositor rank, Omnibus Reconciliation Act, earnings opacity, opacity, transparency, opaque.

Our keyword search is constrained to the 12 months prior to the day of the introduction of state depositor preference.

Appendix B: Additional Results and Robustness Tests

**Table B.1
Charter Switching**

Panel A: Determinants of charter switching				
Dependent variable	(1)	(2)	(3)	(4)
	Charter switch	Charter switch	Charter switch	Charter switch
Post	0.0010 (1.62)	0.0010 (1.62)	0.0010 (1.62)	0.0010 (1.62)
LLP _{t-1}	-0.0000 (-0.05)	-0.0000 (-0.05)	-0.0000 (-0.05)	-0.0000 (-0.05)
Bank size	0.0005 (1.08)	0.0005 (1.08)	0.0005 (1.08)	0.0005 (1.08)
Capital ratio	0.0002 (1.73)	0.0002 (1.73)	0.0003 (1.74)	0.0003 (1.74)
Loss	0.0007* (1.87)	0.0007* (1.88)	0.0007* (1.87)	0.0007* (1.87)
EO ¹	0.0000 (0.31)			
EO ²		0.0000 (0.32)		
EO ³			0.0000 (0.39)	
EO ⁴				0.0000 (0.40)
State FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Observations	205,057	205,057	205,057	205,057
R ²	0.0401	0.0401	0.0401	0.0401
Panel B: Excluding banks that switch charter				
Dependent variable	EO ¹	EO ²	EO ³	EO ⁴
TG * Post	-0.0737*** (-3.79)	-0.0764*** (-3.86)	-0.0755*** (-3.89)	-0.0761*** (-3.92)
LLP _{t-1}	0.2916*** (6.47)	0.2489*** (4.10)	0.2760*** (8.71)	0.2334*** (6.72)
Bank size	0.0178 (1.06)	0.0101 (0.60)	0.0058 (0.34)	0.0098 (0.59)
Capital ratio	-0.0919*** (-4.33)	-0.0931*** (-4.39)	-0.0922*** (-4.25)	-0.0928*** (-4.33)
Loss	0.7565*** (24.75)	0.7576*** (24.76)	0.7573*** (23.86)	0.7583*** (24.09)
State * Quarter FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Observations	197,681	197,681	197,681	197,681
R ²	0.2215	0.2246	0.2263	0.2257

Notes: Panel A reports estimates of equation $s_{bst} = \beta Post_{st} + \gamma X_{bst} + EO_{bst}^j + \delta_b + \delta_s + \delta_t + \varepsilon_{bst}$, where s_{bst} is a dummy variable equal to 1 if bank b in state s switches charter during quarter t , 0 otherwise; $Post_{st}$ is a dummy variable equal to 1 if depositor preference is present in state s during quarter t ; X_{bst} is a vector containing the variables LLP_{t-1}, Bank size, Capital ratio, the Loss dummy, δ_b , δ_s and δ_t denote bank-, state- and quarter-fixed effects, respectively; ε_{bst} is the error term. EO_{bst}^j denotes one of the earnings opacity measures, EO^1 , EO^2 , EO^3 and EO^4 . Panel B reports estimates of equation (6) using a sample that excludes banks that switch charter during the sample period. The TG dummy is omitted in this equation because it is captured by the bank-fixed effect. Standard errors are clustered at the state level and the corresponding heteroscedasticity-robust t -statistics are reported in parentheses. *** and * indicate statistical significance at the 1 and 10 percent levels, respectively.

Table B.2
Alternative test for parallel trends

Time	EO^1				EO^2				EO^3				EO^4			
	State Charter	National Charter	Difference	t -statistic	State Charter	National Charter	Difference	t -statistic	State Charter	National Charter	Difference	t -statistic	State Charter	National Charter	Difference	t -statistic
$t - 1$	-6.2245 (0.0863)	-6.2180 (0.0789)	0.0065 (0.1169)	0.06	-6.2354 (0.0934)	-6.2923 (0.0804)	-0.0569 (0.1241)	-0.46	-6.2301 (0.0920)	-6.2969 (0.0747)	-0.0667 (0.1195)	-0.56	-6.2253 (0.0911)	-6.3012 (0.0736)	-0.0759 (0.1181)	-0.64
$t - 2$	-6.2131 (0.0665)	-6.1571 (0.0614)	0.0560 (0.0904)	0.62	-6.1560 (0.1056)	-6.1392 (0.0938)	0.0168 (0.1420)	0.12	-6.2193 (0.1388)	-6.1557 (0.0935)	0.0636 (0.1698)	0.37	-6.1843 (0.1126)	-6.1501 (0.0922)	0.0341 (0.1468)	0.24
$t - 3$	-6.1900 (0.0607)	-6.1240 (0.0499)	0.0659 (0.0788)	0.84	-6.1694 (0.1527)	-6.0955 (0.0899)	0.0739 (0.1807)	0.41	-6.1555 (0.1391)	-6.0974 (0.0893)	0.0581 (0.1682)	0.35	-6.1526 (0.1357)	-6.0960 (0.0896)	0.0566 (0.1653)	0.34
$t - 4$	-6.1840 (0.0510)	-6.1342 (0.0489)	0.0498 (0.0716)	0.70	-6.1852 (0.0991)	-6.1874 (0.1548)	-0.0022 (0.1757)	-0.01	-6.1755 (0.0957)	-6.1972 (0.1568)	-0.0216 (0.1743)	-0.12	-6.1857 (0.0983)	-6.1895 (0.1555)	-0.0038 (0.1754)	-0.02

Notes: We present tests for parallel trends based on t -tests as suggested by Lemmon and Roberts (2010) and Roberts and Whited (2013). Definitions of the variables are provided in Panel A of Table 2. The t -tests examine the equality of the growth rate of the earnings opacity variables in the pre-treatment periods $t-1$, $t-2$, $t-3$, and $t-4$ between the treatment and control groups.

Table B.3
Further effects of nondepositors' monitoring incentives

Dependent variable	(1) Collateralization	(2) ND maturity structure	(3) Distance to regulator office	(4) Loans past due
TG	0.0359 (0.84)	-0.3586 (-1.08)	-0.7904** (-2.26)	0.1359 (1.69)
TG * Post	0.0642** (2.23)	0.7446*** (3.08)	0.0105 (0.70)	-0.1402* (-1.97)
LLP _{t-1}	-0.5302*** (-8.52)	0.0861 (0.45)	0.0024 (0.26)	0.0732 (1.22)
Bank size	0.1080 (1.59)	0.4469*** (3.58)	-0.0090 (-1.65)	0.2853*** (3.78)
Capital ratio	-0.0097 (-0.67)	0.1850*** (3.56)	0.0015 (0.38)	-0.1343* (-2.14)
Loss	0.0643*** (4.45)	-0.2198*** (-4.37)	-0.0031 (-1.73)	0.2795*** (11.00)
State * Quarter FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Observations	205,057	205,057	205,057	205,057
R ²	0.4116	0.4439	0.9964	0.3848

Notes: This table reports estimates of equation (6) using collateralization, nondeposit maturity structure, the distance to the regulator office, and loans past due (30-89 days) to total loans as the dependent variable. Definitions of the variables are provided in Panel A of Table 2. The sample is restricted to banks in states that enacted depositor preference over the period 1983Q1 to 1993Q2. The standard errors are clustered at the state level and the corresponding heteroscedasticity-robust *t*-statistics are reported in parentheses. ***, ** and * indicate statistical significance at the 1, 5 and 10 percent levels, respectively.

Table B.4

Effects of increases in nondepositors' monitoring incentives during crises and non crisis periods

Panel A: Regional banking crises (New England and Texas)								
Dependent variable	(1) EO^1	(2) EO^1	(3) EO^2	(4) EO^2	(5) EO^3	(6) EO^3	(7) EO^4	(8) EO^4
Sample split	Non Crisis	Crisis	Non Crisis	Crisis	Non Crisis	Crisis	Non Crisis	Crisis
TG	-0.0055 (-0.21)	0.1368 (1.30)	-0.0015 (-0.06)	0.1257 (1.20)	-0.0035 (-0.13)	0.1456 (1.38)	-0.0048 (-0.18)	0.1588 (1.51)
TG * Post	-0.0639*** (-5.79)	-0.4008*** (-4.54)	-0.0672*** (-6.10)	-0.3611*** (-4.10)	-0.0652*** (-5.89)	-0.3844*** (-4.36)	-0.0649*** (-5.87)	-0.4029*** (-4.57)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State * Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	179,563	25,494	179,563	25,494	179,563	25,494	179,563	25,494
R^2	0.2195	0.3113	0.2228	0.3144	0.2248	0.3146	0.2242	0.3140
Chow test F -statistic	19.98		7.53		12.52		16.41	
p -value	0.00		0.02		0.00		0.00	
Panel B: S&L crisis								
Dependent variable	(1) EO^1	(2) EO^2	(3) EO^3	(4) EO^4				
TG	-0.0058 (-0.18)	-0.0009 (-0.03)	-0.0029 (-0.08)	-0.0036 (-0.10)				
TG * Post	-0.0639*** (-3.39)	-0.0663*** (-3.43)	-0.0650*** (-3.37)	-0.0654*** (-3.40)				
TG * S&L crisis	-0.0039 (-0.05)	-0.0101 (-0.11)	-0.0089 (-0.11)	-0.0137 (-0.16)				
Control variables	Yes	Yes	Yes	Yes				
State * Quarter FE	Yes	Yes	Yes	Yes				
Bank FE	Yes	Yes	Yes	Yes				
Observations	205,057	205,057	205,057	205,057				
R^2	0.2217	0.2247	0.2265	0.2259				

Notes: This table reports estimates of equation (6) using the earnings opacity measures EO^1 - EO^4 as the dependent variable. The control variables are LLP_{t-1}, Bank size, Capital ratio, and the Loss dummy. Panel A focuses on the regional banking crises in New England and in Texas. The sample includes observations from Connecticut, Maine, New Hampshire, Rhode Island and Texas. We classify the observations for banks in Connecticut, Maine, New Hampshire, and Rhode Island for the period 1991Q1–1993Q3 as crisis episodes to reflect the New England banking crisis. To consider the Texas banking crisis, we classify observations from Texas for the period 1986Q1–1988Q4 as a crisis. Panel B focuses on the S&L crisis. As most states were affected by the S&L crisis, there are few observations of non crisis periods. We therefore interact the TG dummy with the S&L crisis variable to identify whether state-chartered banks were differentially affected by the S&L crisis. Definitions of the variables are provided in Panel A of Table 2. The Chow test F -statistic in Panel A tests for equality between the coefficients in the models split into non crisis and crisis periods. The p -value is the p -value on the Chow test F -statistic. Standard errors are clustered at the state level and the corresponding heteroscedasticity-robust t -statistics are reported in parentheses. *** indicates statistical significance at the 1 percent level.

Table B.5
Failure Model

Dependent variable	(1) Failure dummy
Bank size	-0.0003 (-1.17)
Capital ratio	-0.0002* (-1.92)
NPA	0.0021 (0.60)
Cost income ratio	-0.0001 (-1.01)
Cash	0.0001 (1.10)
State * Quarter FE	Yes
Bank FE	Yes
Observations	205,057
R^2	0.0448

Notes: We report estimates of the equation $fail_{bst} = \gamma_b + \beta_1 Bank\ size_{bst} + \beta_2 Capital\ ratio_{bst} + \beta_3 NPA_{bst} + \beta_4 Cost\ Income\ Ratio_{bst} + \beta_5 Cash_{bst} + \gamma_{st} + \varepsilon_{bst}$, where $fail_{bst}$ is a dummy variable equal to 1 if bank b in state s fails at time t , 0 otherwise; Bank size, Capital ratio, NPA, Cost Income Ratio, and Cash denote bank size, the capital ratio, the nonperforming loans ratio, the cost income ratio, and cash for bank b in state s at time t ; γ_b and γ_{st} denote bank and state-quarter-fixed effects, respectively; ε_{bst} is the error term. * indicates statistical significance at the 10 percent level.

Table B.6
Further sensitivity checks: Geographical diversification, macroeconomic shocks, and regulators

Panel A: Geographical diversification				
Dependent variable	(1) <i>EO</i> ¹	(2) <i>EO</i> ²	(3) <i>EO</i> ³	(4) <i>EO</i> ⁴
TG	0.0384 (1.22)	0.0356 (1.14)	0.0345 (1.11)	0.0357 (1.15)
TG * Post	-0.0610*** (-3.49)	-0.0644*** (-3.50)	-0.0631*** (-3.51)	-0.0633*** (-3.51)
TG * Number of counties	-0.0354*** (-3.24)	-0.0289** (-2.24)	-0.0296* (-2.11)	-0.0313** (-2.16)
Control variables	Yes	Yes	Yes	Yes
State * Quarter FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Observations	205,057	205,057	205,057	205,057
<i>R</i> ²	0.2218	0.2249	0.2266	0.2261
Panel B: Macroeconomic shocks				
Dependent variable	<i>EO</i> ¹	<i>EO</i> ²	<i>EO</i> ³	<i>EO</i> ⁴
TG	-0.0510 (-0.67)	-0.0526 (-0.71)	-0.0521 (-0.69)	-0.0524 (-0.68)
TG * Post	-0.0641*** (-3.74)	-0.0666*** (-3.75)	-0.0654*** (-3.70)	-0.0659*** (-3.73)
TG * UNEMP	0.0071 (0.71)	0.0081 (0.86)	0.0077 (0.79)	0.0077 (0.77)
Control variables	Yes	Yes	Yes	Yes
State * Quarter FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Observations	205,057	205,057	205,057	205,057
<i>R</i> ²	0.2217	0.2248	0.2265	0.2259
Panel C: Regulatory agency				
Dependent variable	<i>EO</i> ¹	<i>EO</i> ²	<i>EO</i> ³	<i>EO</i> ⁴
TG	0.0143 (0.48)	0.0194 (0.61)	0.0173 (0.55)	0.0165 (0.54)
TG * Post	-0.0642*** (-3.68)	-0.0668*** (-3.68)	-0.0655*** (-3.68)	-0.0660*** (-3.70)
TG * FDIC	-0.1712* (-2.01)	-0.1727* (-1.95)	-0.1713* (-1.91)	-0.1710* (-1.94)
Control variables	Yes	Yes	Yes	Yes
State * Quarter FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Observations	205,057	205,057	205,057	205,057
<i>R</i> ²	0.2217	0.2248	0.2265	0.2259

Notes: We report estimates of equation (6) using the earnings opacity measures *EO*¹-*EO*⁴ as dependent variables. Panel A includes an interaction term between the treatment group dummy and the number of counties a bank operates in. Panel B includes an interaction term between the treatment group dummy and the state unemployment rate. Panel C includes an interaction term between the treatment group dummy and an FDIC dummy. The control variables are LLP_{*t-1*}, Bank size, Capital ratio, and the Loss dummy. The sample is restricted to banks in states that enacted depositor preference over the period 1983Q1 to 1993Q2. Standard errors are clustered at the state level, and the corresponding heteroscedasticity-robust *t*-statistics are reported in parentheses. ***, ** and * indicate statistical significance at the 1, 5 and 10 percent levels, respectively.

Table B.7
Alternative control group: Matched Sample

Dependent variable	(1) <i>EO</i> ¹	(2) <i>EO</i> ²	(3) <i>EO</i> ³	(4) <i>EO</i> ⁴
TG	0.0105 (0.11)	0.0104 (0.11)	0.0116 (0.12)	0.0120 (0.13)
TG * Post	-0.1325*** (-4.18)	-0.1312*** (-4.16)	-0.1317*** (-4.15)	-0.1322*** (-4.16)
<i>LLP</i> _{<i>t</i>-1}	1.3024*** (5.09)	1.3728*** (5.33)	1.3709*** (5.04)	1.3450*** (4.92)
Bank size	-0.0916 (-1.41)	-0.1022 (-1.56)	-0.1094 (-1.66)	-0.1067 (-1.63)
Capital ratio	-0.1089*** (-3.81)	-0.1084*** (-3.80)	-0.1085*** (-3.78)	-0.1087*** (-3.80)
Loss	0.6978*** (20.35)	0.6943*** (20.65)	0.6937*** (20.72)	0.6947*** (20.61)
State * Quarter FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Observations	77,269	77,269	77,269	77,269
<i>R</i> ²	0.1828	0.1863	0.1879	0.1874

Notes: We report estimates of equation (6) based on a 1:1 nearest neighbor propensity matching strategy using the earnings opacity measures *EO*¹-*EO*⁴ as dependent variables. Our matched sample pairs one state-chartered bank with one propensity-score matched nationally-chartered bank, resulting in a sample with 77,269 observations. The sample is restricted to banks in states that enacted depositor preference over the period 1983Q1 to 1993Q2. Standard errors are clustered at the state level, and the corresponding heteroscedasticity-robust *t*-statistics are reported in parentheses. *** indicates statistical significance at the 1 percent level.

Table B.8
Tests for anticipation effects and alternative treatment of standard errors

Panel A: Anticipation effects				
Dependent variable	(1) EO^1	(2) EO^2	(3) EO^3	(4) EO^4
TG	-0.0007 (-0.02)	0.0030 (0.08)	0.0004 (0.01)	0.0002 (0.01)
TG * Post	-0.0700*** (-3.43)	-0.0712*** (-3.33)	-0.0692*** (-3.33)	-0.0703*** (-3.35)
TG * Placebo _{t-1}	-0.0257 (-0.92)	-0.0203 (-0.79)	-0.0184 (-0.72)	-0.0193 (-0.75)
TG * Placebo _{t-2}	0.0165 (0.65)	0.0188 (0.79)	0.0182 (0.69)	0.0157 (0.60)
TG * Placebo _{t-3}	-0.0449 (-0.82)	-0.0379 (-0.69)	-0.0345 (-0.63)	-0.0379 (-0.69)
TG * Placebo _{t-4}	-0.0121 (-0.45)	-0.0115 (-0.41)	-0.0079 (-0.27)	-0.0088 (-0.31)
Control variables	Yes	Yes	Yes	Yes
State * Quarter FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Observations	205,057	205,057	205,057	205,057
R^2	0.2217	0.2248	0.2265	0.2259
Panel B: Bertrand et al. (2004) collapsing technique				
Dependent variable	EO^1	EO^2	EO^3	EO^4
TG	-0.0956 (-1.47)	-0.0863 (-1.33)	-0.0860 (-1.32)	-0.0893 (-1.38)
TG * Post	-0.0974*** (-6.21)	-0.1004*** (-6.40)	-0.0995*** (-6.33)	-0.0991*** (-6.32)
Controls	Yes	Yes	Yes	Yes
State * Period FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Observations	11,048	11,048	11,048	11,048
R^2	0.7343	0.7378	0.7407	0.7403

Notes: We report estimates of equation (6) using the earnings opacity measures EO^1 - EO^4 as dependent variables. Panel A examines anticipation effects by including placebo dummies at $t-1$, $t-2$, $t-3$, and $t-4$ interacted with the treatment group dummy. Panel B uses the collapsing technique described in Bertrand et al. (2004) to mitigate concerns about serial correlation in panels. The data in Panel B contain a before and after period for each bank and we therefore generate period dummy variables, interacted with the state-fixed effects to mirror the state*quarter-fixed effects. The control variables are LLP_{t-1} , Bank size, Capital ratio, and the Loss dummy. The sample is restricted to banks in states that enacted depositor preference over the period 1983Q1 to 1993Q2. Standard errors are clustered at the state level, except for Panel B, and the corresponding heteroscedasticity-robust t -statistics are reported in parentheses. *** indicates statistical significance at the 1 percent level.